ARCHIVES OF
Biochemistry and Biophysics

Volume 110 • 1965

Executive Editors

C. H. W. Hirs
B. L. Horecker
W. D. McElroy
H. S. Mason
F. F. Nord
Earl R. Stadtman
H. Theorell
W. J. Whelan

Editors

Bruce Ames
Gilbert Ashwell
Aaron Bendich
Ronald W. Estabrook
Karl Folkers
David E. Green
François Gros
Osamu Hayaishi
Robert L. Hill
Harvey Itano
Herman M. Kalckar
Ephraim Katchalski
Seymour Kaufman
Walter Kauzmann
Irving M. Klotz
Luis F. Leloir
C. H. Li
F. Lynen
B. G. Malmström
Clement L. Markert
A. Neuberger
L. H. Piette
Rodney R. Porter
Jesse C. Rabinowitz
M. V. Simpson
Thressa C. Stadtman
F. M. Strong
P. K. Stumpf
Andrew G. Szent-Györgyi
Kenneth V. Thimann
W. W. Umbreit
Birgit Vennesland
Gregorio Weber

ACADEMIC PRESS
New York and London

Copyright© 1965, by Academic Press Inc.

ALL RIGHTS RESERVED

No part of this volume may be reproduced in any
form by photostat, microfilm, or any other means,
without written permission from the publishers.

Made in the United States of America

Contents of Volume 110

Number 1, April 1965

Stuart Kornfeld, Rosalind Kornfeld, and Victor Ginsburg. Intracellular Site of Synthesis of Soluble Blood Group Substance 1

R. A. Leng and S. K. Stephenson. Glucose and Acetate Metabolism by Isolated Sheep Wool Follicles 8

J. W. Hinkson and P. D. Boyer. The Light-Induced Formation of Rapidly Phosphorylated Compounds in Chloroplasts 16

In Young Lee, Elmon L. Coe, and Smith Freeman. Effect of *Aspergillus fumigatus* Endotoxin on the Respiration and Phosphorylation of Kidney Tissue 23

O. Bertrand Ramsay and Michael J. Pizanis. Hydrolysis of α-D-Glucosamine-1-Phosphate 32

H. C. Rilling. A Study of Inhibition of Carotenoid Synthesis 39

W. J. Wolf and Dayle Ann Sly. Chromatography of Soybean Proteins on Hydroxylapatite 47

Leopold Weil. On the Mechanism of the Photo-Oxidation of Amino Acids Sensitized by Methylene Blue 57

M. D. Henninger, H. N. Bhagavan, and F. L. Crane. Comparative Studies on Plastoquinones. I. Evidence for Three Quinones in the Blue-Green Algae, *Anacystis nidulans* 69

T. S. Raman, B. V. S. Sharma, J. Jayaraman, and T. Ramasarma. Biosynthesis of Coenzyme Q in Microorganisms 75

A. Rossi Fanelli, D. Cavallini, B. Mondovì, A. M. Wolf, A. Scioscia-Santoro, and F. Riva. Studies on Cottonseed Enzymes. I. Proteolytic and Glutamic Dehydrogenase Activities in Cottonseed 85

Robert C. Caldwell and Ward Pigman. Disc Electrophoresis of Human Saliva in Polyacrylamide Gel 91

B. I. Sahai Srivastava. Effect of Kinetin on the Ecteola Cellulose Elution Profile and Other Properties of RNA from the Excised First Seedling Leaves of Barley 97

Joseph S. McGuire. Coupled Aldehyde Dehydrogenase and Catalase in Mitochondrial Extracts 104

A. Gómez-Puyou, E. Gijón, and M. Tuena. Studies on the Potassium-Dependent Activation of Rat Liver Mitochondrial Adenosinetriphosphatase. H^+ Ejection 109

J. W. Coffey, Hans J. Hansen, and O. Neal Miller. Studies on the Interaction of Vitamin B_{12}: Intrinsic Factor and Receptors. III. Chemical and Biological Properties of Vitamin B_{12} Combining Substances from the Stomach, Serum, and Ascites Fluid of the Mouse 117

R. L. Hancock, M. Shaw Jurkowitz, and L. Jurkowitz. Studies on the Ribonucleic Polymerase in Rat Ventral Prostate 124

G. Cilento and D. L. Sanioto. Pyridine Coenzymes. VI. Association of Models with Polycyclic Aromatic Hydrocarbons 133

Wolfgang Heinen. Time-Dependent Distribution of Silicon in Intact Cells and Cell-Free Extracts of *Proteus mirabilis* as a Model of Bacterial Silicon Transport 137

J. D. Geratz. α-Keto Derivatives of Amino Acids as Inhibitors of Trypsinogen Activation 150

Lu-Ku Li. A Method of Purification and Certain Properties of Hog Kidney Mutarotase 156

Henry B. Bull, Richard L. Antrim, and Keith Breese. Titration of Heat-Denatured Egg Albumin 163

C. A. Ryan. Chicken Chymotrypsin and Turkey Trypsin. Part I: Purification 169

C. A. Ryan, John J. Clary, and Y. Tomimtsu. Chicken Chymotrypsin and Turkey Trypsin. Part II: Physical and Enzymatic Properties 175

T. R. Ricketts. Inorganic Pyrophosphatase in *Prymnesium parvum* Carter 184
T. Uchiyama, N. Fausto, and J. L. Van Lancker. Metabolic Alterations after Total-Body Doses of X-Irradiation. The Effects of X-Irradiation on Rapidly Labeled RNA 191
Richard A. Bernhard and Carl Niemann. A Dilatometric Investigation of the α-Chymotrypsin-Catalyzed Hydrolysis of Nicotinyl-L-Tryptophanamide 195
Paul A. Srere. Conformation Changes in Citrate-Condensing Enzyme 200
H. Brazil and J. Sri Ram. Enrichment of Proteins with Amino Acid Residues, Employing p,p'-Difluoro-m,m'-Dinitrodiphenyl Sulfone 205
George S. Tarnowski, Ralph K. Barclay, Isabel M. Mountain, Makoto Nakamura, Harry G. Slatterwhite, and Edward M. Solney. Determination of Acid-Soluble Thiols and Disulfides in Transplanted Animal Tumors 210
Harvey F. Fisher and Dallas G. Cross. Spectrophotometric Studies of the Quaternary Structure of Proteins. I. Method of Concentration-Difference Spectra 217
Dallas G. Cross and Harvey F. Fisher. Spectrophotometric Studies of the Quaternary Structure of Proteins. II. The α, β Split of Glutamic Dehydrogenase 222
Book Reviews 227
List of Forthcoming Papers 229

Number 2, May 1965

Leon Swell, M. D. Law, and C. R. Treadwell. Absorption of α- And β-Octadecyl Glyceryl Ethers 231
Albert Hirschman and Albert E. Sobel. Composition of the Mineral Deposited during *in Vitro* Calcification in Relation to the Fluid Phase 237
Charles Walter. On the Practicality of the Tracer Distribution Method as a Means of Inferring Velocity Constants 244
I. B. Chatterjee and Ralph W. McKee. Lipid Peroxidation and Biosynthesis of L-Ascorbic Acid in Rat Liver Microsomes 254
W. S. Lynn. Effects of Cations, Polyanions, and Sulfhydryl Reagents on Muscle Proteins 262
James J Peifer, W. O. Lundberg, S. Ishio, and E. Warmanen. Studies of the Distribution of Lipids in Hypercholestermic Rats. 3. Changes in Hypercholesteremia and Tissue Fatty Acids Induced by Dietary Fats and Marine Oil Fractions 270
Jack Gorski and Nira J. Nelson. Ribonucleic Acid Synthesis in the Rat Uterus and its Early Response to Estrogen 284
Firoze B. Jungalwala and John W. Porter. The Configuration of Phytoene 291
R. S. Morris, Joseph R. Spies, and E. J. Coulson. The Chemistry of Allergens. XVII. Disc Electrophoresis and Gel Diffusion of the Carbohydrate-Free Allergenic Protein, CB-65A, from Castor Beans 300
Robert L. McGeachin and John H. Brown. The Amino Terminal Amino Acids of Hog Pancreatic Amylase and Their Relationship to its Enzymatic Activity 303
I. D. Desai and M. L. Scott. Mode of Action of Selenium in Relation to Biological Activity of Tocopherols 309
Masako Kaihara and J. M. Price. The Fate of Quinaldylglycyltaurine in the Cat, Rat, and Rabbit 316
R. K. Scopes. Acid Denaturation of Creatine Kinase 320
Elemer Mihalyi. Estimation of Stray-Light and Fluorescence Effects in Differential Spectroscopy 325
Henry B. Bull and Keith Breese. Ionization of Ribonuclease 331
O. C. Yoder, Kathryn C. Beamer, P. B. Cipolloni, Jr., and D. C. Shelton. Kinetic Studies of L-Valine and Glycyl-L-Valine Uptake by *Leuconostoc mesenteroides*. 336
R. Lambert, Y. Saito, and J. H. Veerkamp. Incorporation of Labeled Derivatives of 2-Deoxy-2-Amino-D-Glucose into the Cell Walls of *Lactobacillus bifidus* var. *pennsylvanicus* 341

John A. Anderson and Hsia-Fei Wang Chang. Borohydride Reduction of L-Glutamate Decarboxylase 346
C. L. Hu, E. A. McComb, and V. V. Rendig. Identification of *altro*-Heptulose and L-Threitol as Products of *meso*-Erythritol Oxidation by *Acetobacter suboxydans* 350
John G. Georgatsos. Acid Phosphatases of Human Erythrocytes 354
John A. Grove, Ralph M. Johnson, and Jack H. Cline. Vitamin E Deficiency in the Rat. I. Effect of Substrate Concentration on Respiratory Decline in Liver Homogenates from Rats fed a Vitamin E-Deficient Diet 357
Leopold R. Cerecedo, Sister Marian José Smith, and Jesus Vicente. Feto-Maternal Relationships: Nucleic Acid Changes; Experiments with Tissue Slices 365
Hirotoshi Shimizu, Yasuo Kakimoto, and Isamu Sano. Spermine and Spermidine in Blood Cells, and a Possible Occurrence of Spermine in Cell Nucleus 368
Akira Kobayashi and Hiromu Matsumoto. Studies on Methylazoxymethanol, the Aglycone of Cycasin. Isolation, Biological and Chemical Properties 373
Kinjiro Miyagawa. Studies on Taka-Amylase A under High Pressure. III. Some Physicochemical Properties of Pressure-Denatured Amylase A 381
Z. Stary, A. H. Wardi, D. L. Turner, and W. S. Allen. Arabinose as a Mucopolysaccharide Component in Human and Animal Brain Tissue 388
Sally M. Howard and M. R. Heinrich. The Anomeric Specificity of Yeast Galactokinase 395

Letters to the Editors

John E. Wilson and Carl S. Vestling. A Cell-Free Steroid Hydroxylating System from *Bacillus megaterium*, strain KM 401
V. Morávek. Oscillopolarographic Assay of Cholesterylesters in the Blood Serum 403

List of Forthcoming Papers 405

Books Received for Review 406

Number 3, June 1965

Miki Goto, Tadashi Okada, and Hugh S. Forrest. Synthesis of 2-Amino-4-Hydroxy-6-(D-*erythro*-1′, 2′, 3′-Trihydroxypropyl)pteridine-3′-phosphate-10-C^{14}, and Its Metabolism in *Drosophila melanogaster* 409
Andreas Rosenberg, Hugo Theorell, and Takashi Yonetani. Optical Rotatory Dispersion of Liver Alcohol Dehydrogenase, and Its Complexes with Coenzymes and Inhibitors 413
H. N. Bhagavan, D. B. Coursin, and K. Dakshinamurti. *In Vivo* Oxidation of Glucose-C^{14} to $C^{14}O_2$ in Biotin Deficiency 422
John H. Ball and Barney Kadis. Steroid Hydroxylation. Intracellular Location of 17α-Hydroxylase and its Substrate Specificity in Sow Ovary 427
Kinjiro Miyagawa, Kiyotoshi Sannoe, and Keizo Suzuki. Reactivation of Pressure-inactivated α-amylase of *Bacillus subtilis* under Moderate Pressure 432
R. W. Burley and W. J. H. Jackson. Absorption of bis (Dinitrophenyl) lysine by Myosin After Treatment with *p*-Chloromercuribenzoate 438
Miki Goto, Mikio Ohno, Hugh S. Forrest, and J. M. Lagowski. The Synthesis of (2-Amino-4-hydroxy-6-pteridinyl) glycerol Phosphate 444
G. A. White and R. M. Krupka. Ascorbic Acid Oxidase and Ascorbic Acid Oxygenase of *Myrothecium Verrucaria* 448
Esther G. Castanera and W. Z. Hassid. Properties of Uridine Diphosphate D-Glucuronic Acid Decarboxylase from Wheat Germ 462
Joseph D. Robinson. Structural Changes in Microsomal Suspensions. II. Studies with Brain Microsomes 475
I. A. Hansen. Intramolecular Patterns of Fatty Acid Incorporation into Triglycerides by Lamb Intestinal Mucosa 485

R. C. Burgus, J. B. Hufham, W. M. Scott, and J. J. Pfiffner. Microbial Degradation of Corrinoids. IV. Alteration of the Corrin Nucleus 490
Manfred Ruddat, Erich Heftmann, and Anton Lang. Biosynthesis of Steviol .. 496
Francis J. Behal and Melvin Center. Heterogeneity of Calf Intestinal Alkaline Phosphatase 500
C. J. Morris and J. F. Thompson. Conversion of *m*-Carboxyphenylalanine to *m*-Carboxyphenylglycine in Wedgewood Iris Leaves 506
Donald S. Berns and Mercedes R. Edwards. Electron Micrographic Investigations of C-Phycocyanin 511
Robert N. Frank and Timothy H. Goldsmith. Adenosine Triphosphatase Activity in the Rod Outer Segments of the Pig's Retina 517
Go Matsumura and Ward Pigman. Catalytic Role of Copper and Iron Ions in the Depolymerization of Hyaluronic Acid by Ascorbic Acid 526
Erwin Haas, Harry Goldblatt, and Edwin C. Gipson. Extraction, Purification, and Acetylation of Human Renin and the Production of Antirenin to Human Renin 534
R. Lambert and F. Zilliken. Novel Growth Factors for *Lactobacillus bifidus* var *pennsylvanicus* 544
John S. Holcenberg and Saul W. Rosen. Enzymatic Sulfation of Steroids by Bovine Tissues 551
Anatoly Berkorovainy. Comparative Study of the Acid Glycoproteins Isolated from Bovine Serum, Colostrum, and Milk Whey 558
E. Eisenberg and C. Moos. Role of Adenosine Triphosphate in the Relaxation of Skeletal Muscle Myofibrils 568
Bruce M. Anderson, Marjorie L. Reynolds, and Constance D. Anderson. Catalysis in Reactions of 1-Benzyl-1,4-Dihydronicotinamide 577
S. S. Brody and M. Brody. An Experiment Showing that P700 can be an Aggregated Form of Chlorophyll *a* 583
H. Brockerhoff. Stereospecific Analysis of Triglycerides: An Analysis of Human Depot Fat 586
M. A. Elnaghy and P. Nordin. The Soluble Nucleotides of the Leaf Rush Uredospores and the Loose Smut Chlamydospores 593
Jack Lieberman, C. McGaughey, B. M. Trimmer, and N. B. Kurnick. Inhibition of Trypsin by Deoxyribonucleic Acid 601
C. R. Benedict, J. Kett, and John W. Porter. Properties of Farnesyl Pyrophosphate Synthetase of Pig Liver 611
Claire L. Hammel and Samuel P. Bessman. Control of Hemoglobin Synthesis by Oxygen Tension in a Cell-Free System 622

Letter to the Editors

L. E. Göran Eriksson and Anders Ehrenberg. ESR Spectra of Flavin Free Radicals Assignment of Hyperfine Splittings to the Benzenoid Part 628

Book Reviews 631

List of Forthcoming Papers 640

Author Index 641

Subject Index 644

Index of Book Reviews 647

OSEPH SAMACHSON AND HILDA LEDERER. The Removal of Sr^{85} and Ca^{45} from Bone *in Vitro* 168
EROME EDELSON AND DEAN F. KEELEY. Inhibition of Thienylalanine Incorporation in *Escherichia coli* by 2-Amino-3-Phenylbutanoic Acid 175
AVID Y. Y. HSIA, SVETISLAV RIABOV, AND ROBERT M. DOWBEN. Inhibition of Glucuronosyl Transferase by Steroid Hormones 181
OSWELL S. COLES AND HERMAN C. LICHSTEIN. The Inhibition of Malic Enzyme of *Lactobacillus arabinosus* 17-5 by Oleic Acid. I. Observations on the Reaction .. 186
OSWELL S. COLES AND HERMAN C. LICHSTEIN. The Inhibition of Malic Enzyme of *Lactobacillus arabinosus* 17-5 by Loeic Acid. II. Prevention of Enzyme Inhibition 191
. F. MARTIN, STEVEN PRICE, AND B. J. GUDZINOWICZ. Evidence for the Complexing of Oxygen by Phenothiazines 196
. I. SAHAI SRIVASTAVA. Investigation of Purinelike Compounds in Immature Maize Kernels, Germinating Barley Seeds, and Yeast 200
ENRY METZGER, LEON WOFZY, AND S. J. SINGER. A Specific Antibody-Hapten Reaction with Novel Spectral Properties 206
RWIN H. SEGEL AND MARVIN J. JOHNSON. Intermediates in Inorganic Sulfate Utilization by *Penicillium chrysogenum* 216
RNEST HAUSMANN. The Formation and Dissolution of Gels from Collagen Solutions: The Effect of β-Aminopropionitrite 227
NTHONY V. GUZZO AND GORDON TOLLIN. Electron Paramagnetic Resonance Studies of Riboflavin and Its Derivatives. I. The Isoalloxazine Semiquinones In Acid 231
NTHONY V. GUZZO AND GORDON TOLLIN. Electron Paramagnetic Resonance Studies of Riboflavin and Its Derivatives. II. The Alloxazine Semiquinones In Acid 244
ONALD M. KIRSCHENBAUM. The Papain-Catalyzed Synthesis of Substituted Hippuryl-*m*-Toluidides, Steric and Sequential Substrate Specificity 249
. JAYARAMAN AND T. RAMASARMA. Intracellular Distribution of Coenzyme Q in Rat Liver 258
. R. WAGLE. Effects of Biotin Deficiency on Carbohydrate Metabolism 267
D. LOERCH AND M. F. MALLETTE. Ethionine Biosynthesis in *Escherichia coli* ... 272
. A. BARBER. The Formation of Uridine Diphosphate L-Rhamnose by Enzymes of the Tobacco Leaf 276
ITSUO TORII, ELVIN A. KABAT, AND SHERMAN BEYCHOK. α-1,2 Linkages in Dextran NRRL B 1424 283
. M. DOCTOR. Studies on the Purification and Properties of Human Plasma Deoxyribonuclease I 286
ETTER TO THE EDITORS
ROMANO PIRAS. Synthesis of Some Aldose 2-Phosphates 291
ook Reviews 293
rrata 298

NUMBER 3, DECEMBER 1963

. ASENSIO, G. AVIGAD, AND B. L. HORECKER. Preferential Galactose Utilization in a Mutant Strain of *E. coli* 299
. VICTOR WU AND ROBERT J. DIMLER. Hydrogen Ion Equilibria of Wheat Glutenin and Gliadin 310
. C. BECKWITH, J. S. WALL, AND R. J. DIMLER. Amide Groups as Interaction Sites in Wheat Gluten Proteins: Effects of Amide-Ester Conversion 319
UILLERMO SOBERON AND PHILIP P. COHEN. Peroxidatic Formation of Alloxan from Uric Acid by Leucocytes 331
. F. HOFERT AND R. K. BOUTWELL. Puromycin-Induced Glycogenolysis as an Event Independent from Inhibited Protein Synthesis in Mouse Liver; Effects of Puromycin Analogs 338
. C. COSTELLO, H. OYA, AND W. SMITH. The Comparative Biochemistry of Developing *Ascaris* Eggs. I. Substrate Oxidation and the Cytochrome System in Embryonated and Unembryonated Eggs 345
REEMAN W. COPE. A Theory of Enzyme Kinetics Based on Electron Conduction

5856-18

Contents of Volume 103

Number 1, October 1963

Morton Urivetzky and Kenneth K. Tsuboi. Enzymes of the Human Erythrocyte. V. Pentose Phosphate Isomerase, Purification and Properties 1

Walter Lovenberg, Jack Barchas, Herbert Weissbach and Sidney Udenfriend. Characteristics of the Inhibition of Aromatic L-Amino Acid Decarboxylase by α-Methylamino Acids 2

Fabian J. Lionetti and Normand L. Fortier. Turnover of Esters Produced from Inosine in Human Erythrocyte Ghosts 3

Nevenka M. Rumen and Warner E. Love. The Six Hemoglobins of the Sea Lamprey (*Petromyzon marinus*) 4

S. R. Lerner. Iodinated Amino Acid Chromatography on Polystyrene Resins 4

Howard D. Stowe. Separation of β- and γ-Tocopherol 5

Donald L. Keister and Anthony San Pietro. The Photoreduction of Cytochrome c by Chloroplasts 6

Thomas E. Morgan, David O. Tinker and Donald J. Hanahan. Phospholipid Metabolism in Kidney. I. Isolation and Identification of Lipids of Rabbit Kidney 7

David O. Tinker, Alan Koch and Donald J. Hanahan. Phospholipid Metabolism in Kidney. II. Potassium Uptake, Lipid Composition, and P^{32} Labelling of the Phospholipids in Rabbit Kidney Cortex Slices *in Vitro*, and the Effects of Diphenylhydantoin 8

Raymond D. Bennett, Erich Heftmann, William H. Preston, Jr. and Joseph R. Haun. Biosynthesis of Sterols and Sapogenins in *Dioscorea spiculiflora* 8

E. A. McComb and V. V. Rendig. Isolation and Identification of L-Threitol from Plants Fed L-Sorbose 9

Edwin S. Higgins and Wilbur G. Chambers. Alterations in Carbohydrate Metabolism Induced in *Aspergillus niger* by Dinitrobenzene 10

Robert W. Bernlohr and G. D. Novelli. Bacitracin Biosynthesis and Spore Formation: The Physiological Role of an Antibiotic 10

Chester E. Holmlund, Robert H. Blank, Karl J. Sax and Ralph H. Evans, Jr. Microbial Formation and Hydrolysis of Testololactone 11

F. C. G. Hoskin and Carole Von Eschen. Stimulation by Quinones of Initial Pentose Phosphate Pathway Steps in Soluble Brain Preparations 12

E. L. Patterson, W. W. Andres, E. F. Krause, R. E. Hartman and L. A. Mitscher. The Microbiological Transformation of Some Yohimbine-Type Alkaloids 13

Bernard N. Bachra, Otto R. Trautz and S. Lawrence Simon. Precipitation of Calcium Carbonates and Phosphates. I. Spontaneous Precipitation of Calcium Carbonates and Phosphates under Physiological Conditions 14

Verne N. Schumaker. A Theory for Measuring Weight Average Diffusion Coefficients from Ultracentrifuge Experiments 15

James E. Baker. Diphenylamine Inhibition of Electron Transport in Plant Mitochondria 16

Letter to the Editors

T. K. Walker, A. M. Hall, M. C. Langton and K. G. Selim. Biological Reduction of Fatty Acids 17

List of Forthcoming Papers 18

Number 2, November 1963

Charlotte D. Stratton and Mildred C. Rebstock. A New Metabolite of *Streptomyces venezuelae*: D-*Threo*-1-*p*-Amino-phenyl-2-Dichloroacetamido-1,3-Propanediol 19

R. Maggio and C. Catalano. Activation of Amino Acids during Sea Urchin Development 20

through the Enzymatic Particles, with Applications to Cytochrome Oxidases and to Free Radical Decay in Melanin 352
M. Chiga, A. Oda, and R. L. Holtzer. The Activities of Certain Nucleoside Diphosphokinases of Normal and Regenerating Rat Liver 366
Anatoly Bezkorovainy, Max E. Rafelson, Jr., and Vinay Likhite. Isolation and Partial Characterization of Transferrin from Normal Human Plasma 371
K. Lamers, F. Putney, I. Z. Steinberg, and H. K. Schachman. Ultracentrifuge Studies with Absorption Optics. 3. A Split-Beam Photoelectric, Scanning Absorption System 379
Miwako Tohjo and Kazuo Shibata. Absorption Spectra of Hematin Complexes with Polyhistidine and Copoly-(Histidine, Glutamic Acid) 401
Rapier H. McMenamy. Association of Indole Analogues to Defatted Human Serum Albumin 409
Jack Gorski and John A. Nicolette. Early Estrogen Effects on Newly Synthesized RNA and Phospholipid in Subcellular Fractions of Rat Uteri 418
Max E. Rafelson, Jr., Michael Schneir, and Vannie W. Wilson, Jr. Studies on the Neuraminidase of Influenza Virus. II. Additional Properties of the Enzymes from the Asian and PR 8 Strains 424
Albert Monroy and Albert Tyler. Formation of Active Ribosomal Aggregates (Polysomes) upon Fertilization and Development of Sea Urchin Eggs 431
Yu-Teh Li, Su-chen C. Li, and M. R. Shetlar. α-Galactosidase from *Diplococcus pneumoniae* 436
Martin L. Pato and Gene M. Brown. Mechanisms of Resistance of *Escherichia coli* to Sulfonamides 443
Garry A. Goldstein and Gene M. Brown. The Biosynthesis of Thiamine. V. Studies Concerning Precursors of the Pyrimidine Moiety 449
C. C. Black and A. San Pietro. Photosynthetic Phosphorylation in the Presence of Vitamin B_6 453
Barbara Whitlock and F. M. Strong. S-Methylvaleric Acid from *Ascaris lumbricoides* 459
Joseph W. Healy, David Stollar, Melvin I. Simon, and Lawrence Levine. Characterization of a Phosphodiesterase from Lamb Brain 461
J. M. Kaper, O. Gebhard, C. J. Van den Berg, and H. Veldstra. Studies on Indolepyruvic Acid I. Synthesis and Paperchromatography 469
J. M. Kaper, O. Gebhard, C. J. Van den Berg, and H. Veldstra. Studies on Indolepyruvic Acid II. Ultraviolet Spectrophotometry 475
Vernon C. Bode and J. Woodland Hastings. The Purification Properties of the Bioluminescent System in *Gonyaulax polyedra* 488
C. C. Delwiche, W. D. Burge, and E. Malavolta. Some Organic Transformations Effected by Cell-Free Preparations of *Nitrosomonas* 500
P. De Moor, K. Heirwegh, and O. Steeno. Protein Binding of Progesterone Studies by Gel Filtration 506
Letters to the Editors
John H. Pazur, Kjell Kleppe, and Ellen M. Ball. The Glycoprotein Nature of Some Fungal Carbohydrases 515
S. A. Kumar, and S. Mahadevan. 3-Indoleacetaldoxime Hydro-lyase: A Pyridoxal-5′-Phosphate Activated Enzyme 516
List of Forthcoming Papers 519
Author Index 520
Subject Index 522
Index of Book Reviews 523